



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,155	10/22/2003	Gordon J. Frost	25281B	9517
22880	7590	09/28/2009		
OWENS CORNING 2790 COLUMBUS ROAD GRANVILLE, OH 43023			EXAMINER DANIELS, MATTHEW J	
			ART UNIT	PAPER NUMBER
			1791	
			NOTIFICATION DATE	DELIVERY MODE
			09/28/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USIPDEPT@owenscorning.com

Office Action Summary

Application No.

10/692,155

Applicant(s)

FROST ET AL.

Examiner

MATTHEW J. DANIELS

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-90 is/are pending in the application.
- 4a) Of the above claim(s) 25-90 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 22 July 2009 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6, 16 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-323872 in view of Grisch (US Patent No. 4,302,499).

JP 08-323872 teaches the basic claimed process of making a fiber reinforced composite wall panel (seamless cladding panel) including, providing a mold, spraying a gel coat (21) (coating layer) against the mold surface, applying a first layer of fibers and resin (22) (first laminate layer), applying a central layer of fibers and resin (23) (core layer), applying a second layer of fibers and resin (24 or 26) (second laminate layer) and curing the resin to form said fiber reinforced composite wall panel (see Abstract and, Figures 5 and 7).

Regarding claim 1, JP 08-323872 does not teach applying a facing veil layer over the second laminate layer, wherein the facing veil layer includes fibers and a binder and further, wherein the resin of the second laminate layers wets the fibers of the facing veil layer. However, the use of a facing veil layer is well known as evidenced by Grisch ('499) who teaches a resin impregnated veil layer that is applied over a fiber reinforced composite, wherein the resin of the fiber reinforced composite flows through the veil layer (see col. 3, lines 4-14, col. 5, lines 54-66).

It would have been obvious for one of ordinary skill in the art to apply a surface veil layer as taught by Grisch ('499) to the backside of the laminate in the process of JP 08-323872 for the following reasons:

(a) The prior art (JP 08-323872) contained a base process upon which the claimed invention can be seen as an improvement by incorporating a veil layer and molding the backside. However, Grisch ('499) demonstrates a comparable process in which stacks of material are molded with a veil against at least one of its surfaces in order to provide an expected result that by allowing resin flow, the veil creates a resin-rich surface which isolates the fibrous reinforcement from corrosion, abrasion, and provides for an improved surface appearance. One of ordinary skill in the art could have applied the same improvement to the JP 08-323872 process in order to provide the same expected benefits to the JP 08-323872 process, hence providing for an improved product.

(b) The prior art (JP 08-323872) contained a base process upon which the claimed invention can be seen as an improvement by incorporating a veil layer and molding the backside of the article. However, Grisch ('499) demonstrates a known technique (application of a veil and pressing with a mold) which is applicable to molding of stacks of preimpregnated fibrous

material or sheet molding compound (SMC). One of ordinary skill in the art that applying the known veil molding technique of Grisch ('499) to the JP 08-323872 reference would have yielded the predictable result that the reinforcement material would be isolated from the surface of the article, resulting in an improved article which resists corrosion and abrasion by isolating the fibers from the surface.

(c) Grisch ('499) suggests the veils for use with articles such as bathtubs (col. 4, line 32) and shower stalls (col. 1, line 20), and JP 08-323872 teaches one embodiment where the fabricated article may be a bathtub ([0001]).

In regard to claims 2 and 3, JP 08-323872 teaches spraying a gel coat layer (21) and curing said gel coat layer prior to applying the first layer of fibers and resin (22) (first laminate) (see Abstract).

Specifically regarding claims 4-6 and 16, JP 08-323872 teaches a first layer of glass fibers and resin (22) (first laminate layer), a central layer of glass fibers and resin (23) (core layer) and a second layer of glass fibers and resin (24) (second laminate layer). Further, JP 08-323872 teaches a polyester resin. It is submitted that a polyester resin is curable at room temperature.

Regarding claims 18 and 19, JP 08-323872 does not teach that the first and second laminates are composed of a plurality of layers. However, Grisch ('499) teaches that the number of layers required by a fiber-reinforced laminate depends on the desired mechanical characteristics (see col. 1, lines 47-55). Therefore, it would have been obvious for one of ordinary skill in the art to provide multiple fiber-reinforced layers as taught by Grisch ('499) to the fiber reinforced laminate in the process of JP 08-323872 because, Grisch ('499) specifically

teaches that the number of layers required by a fiber-reinforced laminate depends on the desired mechanical characteristics, hence providing for an improved product with superior mechanical characteristics.

3. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-323872 in view of Grisch (US Patent No. 4,302,499) and in further view of Bledsoe *et al.* (US 2003/0143373 A1).

JP 08-323872 in view of Grisch ('499) teaches the basic claimed process as described above.

Regarding claim 8, although JP 08-323872 in view of Grisch ('499) teaches a polyester resin, JP 08-323872 in view of Grisch ('499) do not teach that the polyester resin is curable at 80 °F for about 45 minutes. Bledsoe *et al.* (US 2003/0143373 A1) teach a gel coat polymer resin that cures at room temperature (80 °F) in 35 minutes (about 45 minutes). Therefore, it would have been obvious for one of ordinary skill in the art to cure at 80 °F for about 45 minutes as taught by Bledsoe *et al.* (US 2003/0143373 A1) the gel coat layer in the process of JP 08-323872 in view of Grisch ('499) because, Bledsoe *et al.* (US 2003/0143373 A1) teach that such curing provides for a hard, outer coating, hence providing for a laminate with improved aesthetic qualities and also because, JP 08-323872 in view of Grisch ('499) teaches a polyester resin, which is a room temperature curable resin, hence suggesting the curing conditions of Bledsoe *et al.* (US 2003/0143373 A1).

In regard to claim 9, JP 08-323872 in view of Grisch ('499) and in further view of Bledsoe *et al.* (US 2003/0143373 A1) do not teach heat curing of the gel coat. However, the use

of heat to cure a polymer resin is well known. Therefore, it would have been obvious for one of ordinary skill in the art to provide a heating oven to cure the polymer gel coat in the process of JP 08-323872 in view of Grisch ('499) and in further view of Bledsoe *et al.* (US 2003/0143373 A1) because of known advantages that heat curing provides such as, reduced curing time, hence providing for an improved process by increasing productivity.

Specifically regarding claim 10, JP 08-323872 in view of Grisch ('499) does not teach removing trapped air from the first laminate. Bledsoe *et al.* (US 2003/0143373 A1) teaches a process for making a seamless fiber-reinforced panel including, providing a mold surface, applying a gel coat layer, applying a first layer of fibers and resin (first laminate layer) and applying a central reinforcement layer (see ¶¶ 13-16). Further, Bledsoe *et al.* (US 2003/0143373 A1) teaches removing trapped air from the first layer of fibers and resin prior to applying the central reinforcement layer (see ¶ 14, lines 32-35). Therefore, it would have been obvious for one of ordinary skill in the art to remove trapped air as taught by Bledsoe *et al.* (US 2003/0143373 A1) from the first layer of fibers and resin prior to applying the central reinforcement layer in the process of JP 08-323872 in view of Grisch ('499) because of known advantages such as, reduced porosity, which results in obtaining a fiber-reinforced laminate having superior mechanical characteristics.

4. Claims 11-15, 17 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-323872 in view of Grisch (US Patent No. 4,302,499) and in further view of Kia *et al.* (US 2004/0023012 A1).

JP 08-323872 in view of Grisch ('499) teaches the basic claimed process as described above.

Regarding claims 11-13, JP 08-323872 in view of Grisch ('499) do not teach a specific fiber content and thickness of the laminate layers. However, Grisch ('499) teaches that the number of layers, hence the thickness, required by a fiber-reinforced laminate depends on the desired mechanical characteristics (see col. 1, lines 47-55). Further it is noted that the mechanical characteristics of a fiber-reinforced composite are determined by the fiber content. Kia *et al.* (US 2004/0023012 A1) teach a fiber-reinforced laminate having a fiber-reinforced laminate layer (18) including 20-60% by weight reinforcing fibers (see Abstract) and a thickness of about 10 mm (about 0.45 inches). Therefore, it would have been obvious for one of ordinary skill in the art to provide 20-60% by weight reinforcing fibers and a laminate layer thickness of 10 mm (0.45 inches) as taught by Kia *et al.* (US 2004/0023012 A1) to the laminate layers in the process of JP 08-323872 in view of Grisch ('499) because Kia *et al.* (US 2004/0023012 A1) teach that such a proportion is appropriate for providing the strength of the entire laminate (see ¶ 17, lines 3-4) such that the resulting product functions as desired. Further, because the mechanical characteristics of a fiber-reinforced composite are determined by the fiber content, it would have been obvious for one of ordinary skill in the art to use routine experimentation to determine an optimum fiber content of 23-25% in the process of JP 08-323872 in view of Grisch ('499) and in further view of Kia *et al.* (US 2004/0023012 A1) because Kia *et al.* (US 2004/0023012 A1) teach that the fiber content in the laminate determines the strength of the laminate and also because, it is well known that the mechanical characteristics of a fiber-reinforced composite are determined by the fiber content, hence because the fiber content is a result-effective variable.

Furthermore, because Grisch ('499) teaches that the number of layers, hence the thickness, required by a fiber-reinforced laminate depends on the desired mechanical characteristics, it would have been obvious for one of ordinary skill in the art to use routine experimentation to determine an optimum layer thickness of 0.45 inches in the process of JP 08-323872 in view of Grisch ('499) and in further view of Kia *et al.* (US 2004/0023012 A1) because Grisch ('499) teaches that the number of layers, hence the thickness, required by a fiber-reinforced laminate depends on the desired mechanical characteristics, hence because the layer thickness is a result-effective variable.

In regard to claim 14, JP 08-323872 teaches chopped glass fibers.

Specifically regarding claims 15 and 20, JP 08-323872 teaches a fiber length of approximately 0.5 inches in the first and second laminates and, about one inch in the central layer. Kia *et al.* (US 2004/0023012 A1) teach that it is known to make a fiber reinforced laminate using glass fiber having a length of 0.25-1 inches. It is submitted that the mechanical characteristics of a fiber-reinforced composite are determined by the fiber length, hence that the fiber length is a result effective variable. Therefore, it would have been obvious for one of ordinary skill in the art to use routine experimentation to determine an optimum fiber length of 0.625 inches in the first and second laminates and, one inch in the central layer in the fiber-reinforced laminate obtained by the process of JP 08-323872 in view of Grisch ('499) and in further view of Kia *et al.* (US 2004/0023012 A1) because Kia *et al.* (US 2004/0023012 A1) teach that is known to use glass fibers having a fiber length of 0.25-1 inches in making a fiber reinforced laminate and also because, it is well known that the mechanical characteristics of a

fiber-reinforced composite are determined by the fiber length, hence because the fiber length is a result-effective variable.

Regarding claim 17, JP 08-323872 in view of Grisch ('499) does not teach a curing agent. Noting that JP 08-323872 in view of Grisch ('499) teaches a polyester resin, it is further noted that, Kia *et al.* (US 2004/0023012 A1) teach 1.95% by weight MEKP as a typical curing agent for room temperature curing of polyester (see ¶ 47, lines 14-15 and ¶ 53). Therefore, it would have been obvious for one of ordinary skill in the art to provide 1.95% by weight MEKP as taught by Kia *et al.* (US 2004/0023012 A1) to cure the polyester resin at room temperature in the process of JP 08-323872 in view of Grisch ('499) because, Kia *et al.* (US 2004/0023012 A1) specifically teach that 1.95% by weight MEKP provides for room temperature curing, hence providing for a simpler process by eliminating the need of heating equipment and also because, JP 08-323872 specifically teaches a polyester resin, hence suggesting the use of 1.95% by weight MEKP as taught by Kia *et al.* (US 2004/0023012 A1).

Regarding claims 21 and 23, JP 08-323872 in view of Grisch ('499) does not teach a fiber diameter of 11-13 μm . Kia *et al.* (US 2004/0023012 A1) teach that it is known to make a fiber reinforced laminate using glass fiber having a diameter of 5-15 μm (see ¶ 45). It is submitted that the mechanical characteristics of a fiber-reinforced composite are determined by the fiber diameter, hence that the fiber diameter is a result effective variable. Therefore, it would have been obvious for one of ordinary skill in the art to use routine experimentation to determine an optimum fiber diameter of 5-15 μm of the glass fibers in the core and veil layers in the fiber-reinforced laminate obtained by the process of JP 08-323872 in view of Grisch ('499) and in further view of Kia *et al.* (US 2004/0023012 A1) because Kia *et al.* (US 2004/0023012 A1)

teach that is known to use glass fibers having a fiber diameter of 5-15 μm in making a fiber reinforced laminate and also because, it is well known that the mechanical characteristics of a fiber-reinforced composite are determined by the fiber diameter, hence because the fiber diameter is a result-effective variable.

In regard to claims 22 and 24, Grisch ('499) teach that acrylic resin is an equivalent alternative to polyester resin (see col. 3, lines 38-41). Therefore, it would have been obvious for one of ordinary skill in the art to use an acrylic resin as taught by Grisch ('499) as an equivalent alternative to the polyester resin in the process of JP 08-323872 in view of Kia *et al.* (US 2004/0023012 A1) because, Grisch ('499) teach that acrylic and polyester resins are equivalent alternatives in making fiber-reinforced laminates.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-323872 in view of Grisch (US Patent No. 4,302,499) and in further view of Reinisch (US Patent No. 4,261,330).

JP 08-323872 in view of Grisch ('499) teaches the basic claimed process as described above.

Regarding claim 7, although JP 08-323872 in view of Grisch ('499) teach spraying a gel coating, JP 08-323872 in view of Grisch ('499) do not teach that the gel coating is a dry polymer film layer. Reinisch ('330) teaches that a spray coated polyester el coat and an acrylic film are equivalent alternatives for providing an exterior coating for a laminate (see col. 10, lines 57-59). Therefore, it would have been obvious for one of ordinary skill in the art to provide an acrylic film as taught by Reinisch ('330) as an equivalent alternative to the gel coating in the process of

JP 08-323872 in view of Grisch ('499) because, Reinisch ('330) specifically teaches that a spray coated polyester gel coat and an acrylic film are equivalent alternatives for providing an exterior coating for a laminate that provides for improved weatherability, hence providing for an improved product.

Response to Arguments

6. Applicant's arguments filed 22 July 2009 have been fully considered but they are not persuasive. The arguments appear to be on the following grounds:

- a) It appears that the proposed modification set forth in the rejection is to apply a veil like that of Grisch to the exposed surface layer 26 of the Kino laminate. Various reasons are advanced by the Examiner. In setting out item (4), it appears that the Examiner understands layer 26 of Kino to be that which is possibly exposed to corrosion, and which the occupant of the house would clean periodically. However, Applicants submit that this is not correct since layer 26 is not the surface exposed during normal use. If layer 26 were the top surface, there would be no reason to use the gel coat 21 on the opposite side. Applicants believe that it is plain that Kino teaches that his laminate structure is installed such that the gel coat can be seen.
- b) Other references do not cure the deficiencies of Kino and Grisch.

7. These arguments are not persuasive for the following reasons:

- a) The Examiner has carefully considered JP 08-323872 (Kino), Grisch, and Applicants' arguments, but is not persuaded. First, it is submitted that Applicants appear to view the Kino

reference too narrowly as being directly only to bathtubs. The title and the claim in the Kino reference do not support this narrow view. When the Kino reference is viewed without restriction to the type of article formed, the question is not merely whether one would find it desirable to provide a smooth and abrasion resistant surface to the backside of a bathtub (which is addressed below), but whether one would have found it obvious to provide a smooth, corrosion and abrasion resistant surface to both sides of an article. The Examiner submits that this question is answered in the affirmative. Applicants do not appear to assert any unexpected or unpredictable result flowing from the use of the veil in the claimed process. Since veils were known in the art and used to provide predictable and expected results (isolating the fibrous reinforcement from the surface), and the claimed invention appears to incorporate a veil for the same reasons without any unexpected result, it is submitted that one would have found the combination obvious. This position does not appear to be addressed by Applicants' response, but is believed to be a valid rationale for asserting that the combination of Kino and Grisch is obvious.

Moreover, with respect to bathtubs, the Examiner recognizes that it is obvious to provide a smooth surface which faces the user. This surface is provided by the gel coat of Kino. But Applicants appear to assume that one would not find any motivation to improve the appearance of the backside of the bathtub. The Examiner respectfully disagrees. When installed, the backside of bathtubs are indeed hidden from view, but this is not necessarily the case when the bathtubs are sold in home improvement stores. This motivation must be viewed in the context of the manner in which the article would be sold, and not in isolation. At the point of purchase,

appearance of the backside of a bathtub may be an important consideration, and would motivate a manufacturer to improve the appearance of that portion of the article.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. DANIELS whose telephone number is (571)272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew J. Daniels/
Primary Examiner, Art Unit 1791
9/23/09